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Has received an application for a patent for a new and useful invention. The title and description of the invention are enclosed. The requirements of law have been complied with, and it has been determined that a patent on the invention shall be granted under the law.

Therefore, this

United States Patent

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Bruce Lehman

Commissioner of Patents and Trademarks

Attest

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United States Patent [19]

West

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[45] Date of Patent: Sep. 8, 1998

[54] **METHOD AND APPARATUS FOR AUTOMATIC PIXEL CLOCK PHASE AND FREQUENCY CORRECTION IN ANALOG TO DIGITAL VIDEO SIGNAL CONVERSION**

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[51] **Int. Cl.**[6] **H04N 5/12**

[52] **U.S. Cl.** **348/537**; 348/536; 348/540

[58] **Field of Search** 348/536, 537, 348/538, 539, 540, 541, 542, 543, 544, 556, 558, 500, 501, 510, 511, 512; 358/158; 331/20; H04N 5/04, 5/12

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[57] **ABSTRACT**

A method for producing a digital video signal from an analog video signal, the analog video signal including an analog video data signal that is raster scanned in lines across a CRT screen to form consecutive frames of video information, the raster scanning controlled by use of a horizontal synchronizing signal (H_{snyc}) that controls a line scan rate, and a vertical synchronizing signal (V_{snyc}) that controls a frame refresh rate, to produce consecutive frames of video information, wherein the digital video signal is produced by generating a pixel clock signal with pixel clocks for repetitively sampling instantaneous values of the analog video data signal, and digitizing the analog video data signal based on the pixel clock sampling. An expected width E, measured in number of pixel clocks, of a video image producible by the analog video signal is estimated, and an actual width W, measured in number of pixel clocks, of the video image producible by the analog video signal is calculated. The actual width W is compared with the expected width E. When E does not equal W, at least one of a frequency component and a phase component of the pixel clock signal is adjusted until E equals W.

20 Claims, 5 Drawing Sheets